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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,644	07/28/2003	Tomotoshi Kanatsu	00862.023150.	3600

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT PAPER NUMBER

2624

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,644

Applicant(s)

KANATSU ET AL.

Examiner

Alex Liew

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-15, 17-22 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 4, 16 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 4, 16 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regards to claim 4, Takebe (US pat no 6,563,949) discloses inversion processing means for inverting black and white components of said binary image (see fig 5A – C), but there is no applicable prior art or suggestion disclosing a determination step of determining whether or not said character area is an inverted image based on the binary image of said image in combination with claim 1.

With regards to claims 16 and 23, see the rationale of claim 4.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6 and 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2624

With regards to claim 6, the examiner is unclear on what the applicant means by "image generated by *counting* said binary image, generated by *differentiating* said image" and described in the specification on page 28 lines 18 – 22. The examiner asked the applicant to clearly describe the function stated above.

With regards to claim 7, the examiner is unclear on what the applicant mean by "by *counting differential* information" and described in the specification on page 31 lines 2 – 5. The examiner asked the applicant to clearly describe the function stated above.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 6 – 8, 13 – 15, 20 – 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US pat no 4,903,312) in view of Donnelly (US pat no 6,011,866).

With regards to claim 1, Sato discloses an image processing method for detecting a direction of an image including a character area, inputted into a computer, said method comprising:

a binary image generation step of generating a binary image of said image (see col. 5 lines 4 – 8),

a tile image generation step of generating a tile image by applying a predetermined value to tiles, each corresponding to a predetermined size area in said binary image (see col. 5 lines 24 – 28 and fig 3 – each tile corresponds to each pixel “\$” as black pixel and “ ” as white pixel),

a character area extraction step of extracting an area in said binary image, corresponding to an area in a circumscribed rectangle surrounding connected pixels having the same value in said tile image, as a character area (see col. 6 lines 27 – 36 and fig 3 the extracted binary image area of the character is rectangular shape). Sato teaches matching step where a distance calculation between histogram data of one of the registered character in library is calculated (see col. 6 lines 55 – 65). But fails to disclose a direction detection step as discussed on page 3 lines 15 – 19 of the applicant.

Donelly discloses a direction detection step of recognizing a direction of characters included in said character area and thereby detecting the direction of said image (see col. 5 lines 11 – 25 and fig 7A – D – the direction detection step compares bank note bill to template at all direction, the template that matches best with the template at of the direction is the match). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include direction detection step because to detect the character at all possible orientations and directions to find the best match for each character and reducing error in recognition.

With regards to claim 2, Sato discloses an image processing method according to claim 1, wherein at said binary image generation step, the binary image is generated with image area flags having a value 1 corresponding to a pixel equal to or greater than a predetermined value or a value 0 corresponding to a pixel less than the predetermined value, and at said tile image generation step, the tile image is generated with a tile having a value 1 where the number of image area flags having the value 1 is equal to or greater than a predetermined threshold value, and a tile having a value 0 where the number of image area flags having the value 1 is less than the predetermined threshold value (it is inherent to convert an image to a binary image by using a threshold value determining each of the pixel whether it is to be zero or one).

With regards to claim 3, Sato discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, and an image processing method according to claim 1, further comprising a character extraction step of extracting the respective characters included in said character area extracted at said character area extraction step (see fig 2 – 12), but fails to disclose character recognition step of recognition a direction of said characters. Donelly discloses direction detection step, the direction of said character area is detected based on the result of recognition of the direction of said characters included in said character area (see col. 5 lines 11 – 25 and col. 1 lines 16 – 18). See the motivation for claim 1.

Art Unit: 2624

With regards to claim 6, Sato discloses an image processing method according to claim 1, wherein said tile image is a low resolution binary image generated by counting said binary image (see col. 5 lines line 24 – 28 – the resolution is 12 lines/mm, which is read as low resolution and counted there is 12 lines per mm in the image), generated by differentiating said image (see col. 5 lines 28 – 34 and fig 3 to fig 4 – there are dot plugged in shown in fig 4 – the plugged in process is read as differentiating, where plugging in the new dots are use to differential the image in fig 3 to fig 4), by a small area (see fig 3 – is the small area).

With regards to claim 7, Sato discloses an image processing method according to claim 1, wherein said tile image is a low-resolution differential image (see col. 5 lines 24 – 28 – 12 lines/mm is read as low resolution) generated by counting differential information of said image by a small area (the 12 lines is read as differential information and is counted there is 12 lines per mm in the image).

With regards to claim 8, Sato discloses an image processing method according to claim 6, wherein at said character area detection step, an area in said image, corresponding to the connected pixels extracted from said low resolution image, is extracted as a character area (see fig 3 or fig 4 is the character image area – the letter 'B' is extracted).

With regards to claims 13 and 20, see the rationale and rejection for claim 1.

With regards to claims 14 and 21, see the rationale and rejection for claim 2.

With regards to claims 15 and 22, see the rationale and rejection for claim 3.

With regards to claim 27, Sato discloses computer-readable storage medium holding the program according to claim 20 (the flow charts described in must be perform in a computer environment requiring computer program stored in storage medium).

3. Claims 5, 9 – 11, 17, 18, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato ('312) in view of Donnelly ('866) as applied to claim 2 further in view of Matsuda (US pat no 6,014,470).

With regards to claim 5, Sato discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference and character area extraction step (see fig 2 – 12) plural tile images are compared with each other and character area included in said image is extracted (see fig 2 – 16 with 2 – 17 – the image consist of pixels which make up the character image, each pixel is read as tile – after the character is extraction it is identified using library to compare library characters to extracted character using histogram methods, see col. 6 lines 37 – 54), but fails to disclose using plural different threshold to binaries image. Matsuda discloses image generation step, plural tile images are generated using different threshold values (see col. 3 lines 9 – 22). It would have been obvious to one having ordinary skill in the art at

Art Unit: 2624

the time of the invention was made to include using plural different threshold to binaries image because to prevent any errors from occurring when the input image contain light and dark areas, a different threshold is needed in light areas of the image and a different threshold is needed in the darker area of the image, so to improve the quality of the image.

With regards to claim 9, see the rationale and rejection for claim 5.

With regards to claim 10, Sato discloses an image processing method according to claim 9, wherein at said character area extraction step, connected pixels extracted from said plural low resolution images are compared with said plural low resolution images and said character area is extracted (see fig 3 as the low resolution image and use to compare to library to identify the character, fig 2 – 16 and 17).

With regards to claim 11, Sato discloses an image processing method according to claim 6, wherein at said character area extraction step, said low resolution image is divided into meshes, and said character area is extracted based on distribution of pixels within each mesh area (see col. 6 lines 26 – 41).

With regards to claim 17, see the rationale and rejection for claim 5.

With regards to claim 18, see the rationale and rejection for claim 11.

Art Unit: 2624

With regards to claim 24, see the rationale and rejection for claim 5.

With regards to claim 25, see the rationale and rejection for claim 11.

4. Claims 12, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US pat no 4,903,312) in view of Donelly (US pat no 6,011,866) as applied to claim 11 further in view of Iwayama (US pub no 2004/0161151).

With regards to claim 12, Sato discloses all of the claim elements / features as discussed above in rejection for claim 11 and incorporated herein by reference, but fails to disclose selection output step of selectively outputting a character area. Sato does teach character area determined based on the distribution of pixels within each mesh area (see col. 6 lines 26 – 41). Iwayama discloses an image processing method according to claim 11, wherein said character area extraction step includes a selection output step of selectively outputting a character area extracted using connected pixels extracted from said low resolution image (see fig 10 – the area around the candidate character under 'Return' is read as the outputted selected character area). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include selection output step of selectively outputting a character area because to let to user to enter another image character while he user does not have to finish the current character image, to speed up the character input time.

With regards to claims 19 and 26, see the rationale and rejection for claim 12.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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10/29/06

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